HISTORY OF THE DEPARTMENT
GEODETIC SCIENCE

AT

THE OHIO STATE UNIVERSITY

By Dean C. Merchant
(1969)

HISTORY OF THE DEPARTMENT

GEODETIC SCIENCE

The Early Years

Credit for the initial spark of life for geodetic science at The Ohio State University is given to several individuals. In 1938, a proposal was made to the University Administration for establishment of a center for education and research in geodesy, photogrammetry and cartography by Dr. Edwin Coddington (then Professor of Geodesy in Civil Engineering), Professor Oscar Marshall and Professor George Harding of Civil Engineering. During the next several years little progress was made even though interest continued to run high. The demands of the Second World War did not permit further development until 1946. Upon returning from military service, Professor Harding renewed interest in the geodetic sciences by presenting a formalized plan aimed at meeting the anticipated demands of the profession.

The plan for a proposed center was submitted during 1947 to a selection of over thirty world recognized experts for their review and comment. The plan was revised accordingly and efforts were made to secure funds to support the center's development. The first significant funds were offered by governmental agencies as a means for conducting research into problems which for many years had inhibited the growth of the profession.

The earliest research contracts were awarded in May, 1947, therby initiating the first research laboratory for geodetic science in this hemisphere; the Mapping and Charting Research Laboratories (MCRL). The existence of MCR Laboratories provided a natural vehicle to bring world experts in geodesy to Ohio State. Their primary assignments were to

conduct research; however, they formed a diversified pool of experts through which teaching could be conducted.

During these formative years, Dr. W. A. Heiskanen, Director of the Finnish Geodetic Institute was invited to this country on a leave of absence basis. He continued through the years in various administrative and technical capacities associated with geodetic science at Ohio State until his retirement in 1965.

A partial list of scientific notables who contributed substantially as visiting lecturers to the early days of development of geodetic science at The Ohio State University is as follows:

Dr. R. A. Hirvonen, Professor of Geodesy, Finland's Institute of Technology, Lecturer of Geodesy total of three years.

Dr. T. J. Kukkamäki, Professor of the Finnish Geodetic Institute, Lecturer of Geodesy 1953.

Dr. Bertil Hallert, Director of the Institute of Photogrammetry of the Royal Swedish Institute of Technology, Lecturer of Photogrammetry 1953 and 1967.

Dr. F. A. Vening Meinesz, Professor of Geodesy and Geophysics, University of Utrecht, Holland, Lecturer of Geodesy and Geophysics 1953.

Dr. R. Roelofs, Professor of Astronomy and Photogrammetry, Institute of Technology in Delft, Holland, Lecturer in Photogrammetry 1953.

Dr. Antonio Marussi, Professor of Geodesy and Geophysics. Trieste University, Italy, Lecturer of Geodesy 1951.

Dr. Karl Jung, Professor of Geophysics, University of Kiel, Germany Lecturer of Geodesy 1958-59.

The primary responsibilities of each of these scientists was to research activities of the Mapping and Charting Research Laboratories, thus making them also available as lecturers on topics in geodetic science.

The Institute

As the activities of the MCR Laboratories expanded, it became evident that additional organizational structure was required to coordinate the diversified teaching and research activities that crossed the exisiting departmental lines. Accordingly, action was taken as indicated in the following copy of the proceedings of the Board of Trustees, November 20, 1950.

> "The Ohio State University has a unique position in the field of geodesy, photogrammetry and cartography. Extensive research projects are being carried on here under contracts through the Research Foundation. They are directed by Professor George Harding who has brought to the campus for this work the top leaders in the world in this field.
>
> The need for trained men in this scientific area is acute. No school in the nation has a program of study designed to fit men for this work. We have been offering some work toward this end in the various separate fields, but it has not been coordinated into a central program that would provide a basis for an undergraduate major and a graduate degree. We have had representations from the U. S. Geodetic Survey, from the Armed Forces, from Canada and South America on the great need for a program in this field with the added indication that The Ohio State University is the logical place for its development.
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> A faculty committee has studied the problem at some length and has proposed a rather simple solution which has been reviewed by the Council on Instruction, the Graduate Council and the Faculty Council and is recommended by these bodies. The proposal is that we create an Institute of Geodesy, Photogrammetry and Cartography for the purpose of coordinating the work in these various areas and concentrating it into a distinguished program leading to the doctor's degree.
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> At the conclusion of Vice President Hatcher's report, the President presented the following recommendation:
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> That upon the recommendation of the Faculty Council at its meeting held on November 14, 1950, an Institute of Geodesy, Photogrammetry and Cartography be established.
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> Upon motion of Mr. Kettering, seconded by General Dargusch, the above recommendation was approved by unanimous vote."

Thus, the "Institute" came into being. The Institute of Geodesy, Photogrammetry and Cartography was established under the Graduate

School of the University. The courses in geodesy and photogrammetry were listed in the offerings of the Department of Geology and those in cartography were offered through the Department of Geography. Although the Institute was established primarily for advanced study, a four year program leading to a B.S. degree was also approved which would provide appropriate preparation for entering the advanced degree programs.

An Executive Board of the Institute was established with Professor Harding as Executive Director and Dr. Heiskanen as Scientific Director. An international advisory committee was established related to the technical aspects of the Institute. A list of members of the advisory committee may be found in Appendix G. In June, 1953, Professor Harding resigned from the University and Dr. Heiskanen assumed the position of Director of the Institute. Other members of the Executive Board of the Institute were the Dean of the Graduate School, the Dean of the College of Arts and Sciences and two members appointed for two year terms from the cooperating academic departments.

In addition to Professor Harding and Dr. Heiskanen, particular credit is given to the following Ohio State University staff members for their contributions to the Institute while in its formative stages.

Professor Fred Doyle, Professor, Department of Geology

Dr. J. Allen Hynek, Professor, Department of Physics and Astronomy

Dr. Geoffrey Keller, Professor and Director of McMillin and Perkins Observatories

Dr. Carl A. Lamey, Professor and Chairman, Department of Geology

Dr. Guy - Harold Smith, Professor and Chairman, Department of Geography

Dr. Edmund M. Spieker, Professor and Chairman, Department of Geology

Dr. Charles Summerson, Professor, Department of Geology

By 1953, there existed two well-developed and distinct organizations at The Ohio State University concerned with geodetic science. The Mapping and Charting Research Laboratories operating through The Ohio State University Research Foundation was concerned with contract research. The Institute of Geodesy, Photogrammetry and Cartography, under the Graduate School was concerned with academic instruction and research of the type necessary to compliment the academic program.

The course offerings of the Institute first appeared in the 1952-1953 Graduate School Bulletin. Ten courses were offered in Photogrammetry and geodesy through the Geology Department and four courses in cartography were offered through the Geography Department. The program remained essentially unchanged until the 1959-1960 academic year during which expanded and revised course offerings were provided. The courses were revised slowly until the 1966-1967 academic year during which a completely revised series of courses were offered. These remain essentially unchanged to date.

The first degree granted was a M.Sc. to William Kaula in the Spring of 1952. During the academic year 1954-55, there were eleven students in the undergraduate program, eight in the M.S. program and four working toward the Ph.D. In addition there were nineteen students enrolled in other programs taking the courses of the Institute, making a total of forty-two students. The students were predominantly graduate; a trend that would continue.

The first appointments of the regular staff of the Institute were two part-time professors in the Department of Geology. Dr. Heiskanen was appointed as Professor of Geodesy. Professor Doyle was appointed

Assistant Professor of Photogrammetry. The remaining staff was drawn from the research associates of the Mapping and Charting Research Laboratory.

The Division

During the Spring of 1959, a major reorganization of the research and teaching activities was accomplished. A new Division of Geodetic Science was established within the Department of Geology for the purpose of preparing for eventual attainment of Department status for geodetic science. Professor Doyle was appointed as Chairman of the Division beginning the Summer Quarter of 1959. The function of the Institute of Geodesy, Photogrammetry and Cartography was redefined. The Institute, still under the direction of Dr. Heiskanen, was now primarily concerned with the conduct and promotion of research across interdepartmental lines. The Director of the Institute also held responsibilities in developing the teaching program of the Division, the teaching of advanced courses, the advising of students and the supervision of thesis and dissertations in geodesy. The Mapping and Charting Research Laboratories were discontinued in 1959 after which research conducted by staff members of the Division was administered through The Ohio State University Research Foundation.

At the conclusion of the Autumn Quarter, 1959, Professor Doyle resigned from the University after which Professor R. Oetjen, Associate Dean of the College of Arts and Sciences was appointed as Acting Chairman of the Division of Geodetic Science.

The Department of Geodetic Science

The preparations for departmental status proceeded rapidly under Dean Oetjen until February 1961, when by action of the Board of Trustees,

the Department of Geodetic Science was established in the College of Arts and Sciences. Dean Oetjen continued as Acting Chairman until 1962, when Dr. E. Moulton, Associate Dean of the Graduate School and Associate Dean of the College of Arts and Sciences was appointed as Acting Chairman of the new Department. The present and first permanent Chairman of the Department of Geodetic Science, Professor U. A. Uotila, was appointed on July 1, 1964. The evolution of geodetic science to departmental status was complete.

Concurrent with the development of the teaching activities, an extremely active research program was conducted in many of the areas of geodetic science. Particular emphasis was on world-wide gravity program, satellite geodesy, aerial triangulation, glacial mappings and analytical photogrammetry.

The following major technical symposia have been sponsored by the Institute or Department on The Ohio State University campus:

Symposium, Geophysics and Geophysical Geodesy, November 11-12, 1953, Columbus, Ohio

Symposium, New Era of Geodesy, November 12-13, 1954, Columbus, Ohio

Symposium, Size and Shape of the Earth, November 13-15, 1956, Columbus, Ohio

Symposium, Geodesy in the Space Age, February 6-8, 1961, Columbus, Ohio

Symposium, Extension of Gravity Anomalies to Unsurveyed Areas, November 18-20, 1964, Columbus, Ohio

During the summer of 1967, the first in a planned continuing series of two-week short courses was held entitled "Summer Institute in Geodetic Science". The course attracted approximately fifty participants drawn from the practicing profession of geodetic science. The Summer Institute was held again in 1968 and 1969.

The Department of Geodetic Science, currently in the College of Mathematics and Physical Science, had grown steadily. By 1968, there were 15 undergraduate and 60 graduate students enrolled. As of 1968, the Graduate School had awarded 181 M.Sc. degrees and 22 Ph.D. degrees in the field of geodetic science. The College of Arts and Sciences has awarded 44 B.S. degrees as well during this period.

In addition to those previously mentioned the following is a list of teaching faculty members of the Institute, Division or Department of Geodetic Science, their latest academic rank and dates of service:

Mr. R. K. Adler, Assistant Professor 1967 -

Dr. A. J. Brandenberger, Professor 1954-1965

Mr. S. Cushman, Instructor 1964-1968

Mr. J. Dowdy, Lecturer 1959, 1967

Mr. F. J. Doyle, Associate Professor 1952-1959

Mr. R. A. Dunbar, Lecturer 1960-64

Dr. S. K. Ghosh, Associate Professor 1961 -

Dr. W. A. Heiskanen, Professor 1951-1965, Emeritus 1965 -

Dr. D. L. Kivioja, Instructor 1960-1963

Dr. S. Laurila, Professor 1954-1959, 1960-1966

Dr. D. C. Merchant, Associate Professor 1954, 1967 -

Dr. F. Montero, Assistant Instructor 1960-1962

Dr. I. I. Mueller, Professor 1959 -

Dr. R. H. Rapp, Associate Professor 1963 -

Dr. P. Richardus, Associate Professor 1968-1969

Dr. U. A. Uotila, Professor 1955, 57, 59 - Chairman 1964 -

In Summary

The activity in geodetic science had its origin at The Ohio State University about 1939 in the Department of Civil Engineering through Professors Coddington, Marshall and Harding. In contrast to the usual evolution within the University, the contract research activity preceded and promoted the teaching program. The teaching program was established initially in 1950 within the Institute of Geodesy, Photogrammetry and Cartography through the Graduate School. The "Institute" achieved divisional status in 1959 as the Division of Geodetic Science with the Department of Geology. The present Department of Geodetic Science was established in 1961 and is presently a department in the College of Mathematics and Physical Science.

List of Appendices

A. "Announcing the Establishment of The Institute of Geodesy, Photogrammetry and Cartography," The Ohio State University, (1951).

B. "The Institute of Geodesy, Photogrammetry and Cartography," The Ohio State University, (1952).

C. "Department of Geodetic Science at The Ohio State University," Columbus, Ohio, (1968).

D. "Courses," Department of Geodetic Science, The Ohio State University, (1968).

E. "Theses and Dissertations," Department of Geodetic Science, The Ohio State University, (1968).

F. "Reports," Department of Geodetic Science, The Ohio State University, (1968).

G. Members, International Advisory Committee, The Ohio State University.

(A)

Announcing the Establishment

of

THE INSTITUTE OF GEODESY, PHOTOGRAMMETRY AND CARTOGRAPHY

1951

Program

(B)

The Graduate School

THE INSTITUTE OF GEODESY PHOTOGRAMMETRY AND CARTOGRAPHY

Brochure

1952

(C)

Department of GEODETIC SCIENCE AT THE OHIO STATE UNIVERSITY

Brochure

(D)

COURSES

The Department
of
Geodetic Science

Brochure

(E)

THESES & DISSERTATIONS

The Department
of
Geodetic Science

Brochure

(F)

REPORTS

The Department
of
Geodetic

Brochure

APPENDIX G

ADVISORY COMMITTEE

The following men have consented to act as an informal advisory committee, particularly as related to the international technical aspects of the work of the Institute:

ROBERT H. RANDALL, Assistant on Cartography, United States Bureau of the Budget; President, Pan American Institute of Geography and History, Washington, D. C., Chairman

TALBERT ABRAMS, President, American Society of Photogrammetry, 1951; President, Abrams Aerial Survey Corporation, Lansing, Michigan

COL. H. A. BAUMANN, Director, Trigsurvey, Trigonometrical Survey Office, Cape Town, South Africa

MAJOR GEN. R. Ll. BROWN, Director, Ordnance Survey, Chessington, Surrey, England

W. O. BYRD, Research Associate and Technical Supervisor, Mapping and Charting Research Laboratory, The Ohio State University Research Foundation, Columbus, Ohio

DR. EARL CHURCH, Consultant, Mapping and Charting Research Laboratory, The Ohio State University Research Foundation; Head, Department of Photogrammetry, Syracuse University (Ret.), Parish, New York.

JAMES J. DEEG, Chief, Mapping and Charting Branch, Air Material Command, Wright-Patterson Air Force Base, Dayton, Ohio

DR. BERTIL P. HALLERT, Professor and Technical Director, Institute of Photogrammetry, Royal Institute of Technology, Stockholm, Sweden

DR. C. A. HART, Vice-Chancellor, University of Roorkee, Roorkee, U. P., India

BRIG. MARTIN HOTINE, Director of Colonial Surveys and Survey Adviser to the Secretary of State for the Colonies, London, England

COL. FLOYD W. HOUGH, Chief, Geodetic Division, Army Map Service, Washington, D.C.

DR. GEORGE H. T. KIMBLE, Director, American Geographical Society, New York, New York

WALTER D. LAMBERT, Consultant, Mapping and Charting Research Laboratory, The Ohio State University Research Foundation; Chief, Section of Gravity and Astronomy, United States Coast and Geodetic Survey (Ret.), Canaan, Connecticut

W. H. MILLER, Director, Surveys and Mapping Branch, Department of Mines and Technical Surveys, Ottawa, Canada

ROBERT L. MORAVETZ, Assistant to the Chief Topographic Engineer, United States Geological Survey, Washington, D.C.

MURRAY Y. POLING, Chief, International Technical Cooperation Section, United States Coast and Geodetic Survey, Department of Commerce, Washington, D. C.

J.E.R. ROSS, Dominion Geodesist, Geodetic Survey of Canada, Ottawa, Canada

DR. PEDRO C. SANCHEZ, Director, Pan American Institute of Geography and History, Tacubaya, D. F., Mexico

COL. PAUL C. SCHAUER, Commanding Officer, United States Air Force Aeronautical Chart and Information Service, Washington, D. C.

DR. WILLIAM SCHERMERHORN, Dean, International Training Center for Aerial Survey, Delft, Netherlands

DR. ANDRE C. SIMONPIETRI, Special Adviser on Cartography, Department of State; Secretary, Executive Committee, Pan American Institute of Geography and History, Washington, D. C.

REAR ADM. ROBERT F. A. STUDDS, Director, United States Coast and Geodetic Survey, Department of Commerce, Washington, D. C.

ARTHUR J. SWEET, Assistant Chief Examiner, Surveying and Mapping, United States Bureau of the Budget, Washington, D.C.

PROF. PIERRE TARDI, General Secretary and Director, Central Bureau, International Association of Geodesy, Paris, France

DR. FELIX A. VENING MEINESZ, Professor in Geodesy and Geophysics, Universities of Utrecht and Delft, Amersfoort, Holland

GEORGE D. WHITMORE, Chief of Technical Staff, Topographic Division, United States Geological Survey, Washington, D. C.